NOTES.

THE desirability of fostering scientific research as a result of experience gained during the war was recently urged upon various Government Departments by the British Association. There is reason to believe that measures are being taken to this end in various directions; in particular, the association has received from the Admiralty a communication in the course of which it is stated that the authorities there "are keenly alive to the supreme importance of research in its bearing on naval requirements, and that the organisation of suitable arrangements for this purpose is now engaging, and will continue to engage, their earnest attention. Rapid progress is now being made in the elaboration of a complete scheme which will provide, on one hand, for systematic and continuous development in research and experimental establishments controlled by the Department, and, on the other, for an effective relation between these establishments and scientific institutions throughout the country."

THE collection of precious stones which was formed by the late Sir Arthur H. Church, and presented by his widow to the Trustees of the British Museum, has recently been placed in a special case under the archway leading from the main gallery of minerals to the meteorites pavilion at the Natural History Museum. Sir Arthur Church was for thirty-two years professor of chemistry at the Royal Academy of Arts, and his leaning towards art led him from his early days to take an interest in rare gem-stones. In consequence, the collection was at his death exceptionally rich in specimens of mineral species seldom seen in ordinary jewelry, as well as in unusual specimens of familiar species. The pride of the collection is the brilliant orange-coloured spessartite, which is all but unique, since only one other such stone (cut, in fact, from the same original crystal) is known to exist. The collection is very rich in zircons. Together with the four stones which Sir Arthur Church presented in his lifetime, the collection numbers 207 specimens, without counting the eight diamond points and the twenty-one diamond brilliants used in the setting of a zircon and a peridot ring respectively; of them, 170 are set in 162 gold rings and 37 are unset.

DR. O. HOLTEDAHL is organising a Norwegian exploring expedition to Novaya Zemlya, and hopes to sail in June next year. Dr. Holtedahl, who has had previous polar experience in geological exploration in Spitsbergen, has laid his plans before the Norwegian Academy of Sciences, where they obtained the support of Dr. F. Nansen, who advocated a State grant. According to the *Morning Post*, Dr. Holtedahl will make the base of his expedition on Matochkin Shar, the strait between the two large islands, where there is a small Samoyede settlement. A botanist, a zoologist, and a meteorologist will accompany the expedition, while the leader will devote his time to geology and geophysical problems. Novaya Zemlya is by no means a *terra incognita*; Russian explorers have frequently visited it, particularly in search of minerals. But the results of their work have only partly been published, and the collections and observations have probably been destroyed. In 1916 the Russian Government proposed to erect two permanent meteorological stations in Novaya Zemlya, one at the north end and the other at Matochkin Shar; but nothing has yet been done. Dr. Holtedahl rightly insists on the usefulness of a permanent station. He would also like to see one on the island of Jan Mayen, between Iceland and Spitsbergen.

A LETTER has been received by us from Dr. Th. Mortensen, the distinguished curator of the zoological collections in the Royal Museum, Copenhagen, protesting against the use of the German word "Anlage" in zoological papers written in English. It is rather curious that it should have been left to a friendly neutral to protest against this disfigurement of the English language. Dr. Mortensen suggests that the English word "rudiment" conveys exactly the meaning of "Anlage," and he hazards the supposition that the reason why "rudiment" is not more largely used in this sense is that it has been customary in the past to employ the phrase "rudimentary organ" to signify the disappearing remnant of a once functional structure. In both his views we heartily concur with Dr. Mortensen. Unfortunately, the phrase "rudimentary organ" is found embedded in our great classic of biology, the "Origin of Species," and it is probably for this reason that some years ago leading American zoologists, who disliked the word "Anlage," attempted to replace it by the English word "fundament," an attempt which excited only amusement in the zoological world in general. To us it seems that only a little perseverance is required in order to establish the word "rudiment" as the English equivalent of "Anlage," whilst the equally good English word "vestige" can be used to signify the remnant of a disappearing organ. This usage has already been adopted by some of our most recent writers on embryology, and it is to be hoped that it will spread until it becomes universally recognised.

THE appeal which is being made by the Research Institute in Dairying, attached to University College, Reading, for funds to purchase a suitable farm and to provide research laboratories and a dairy is deserving of support, not only by those connected with the dairying industry, but also by the public at large. A good supply of pure milk at a moderate price is most important for the nation, and it is only by a systematic inquiry conducted with proper equipment by skilled workers that the problem will be solved. The formation of a research institute on dairying dates only from 1912, and, naturally, the work which has been undertaken up to the present has been seriously handicapped by war conditions. Now, however, the staff of the institute is in a position to press forward the various inquiries which have in many cases already been commenced. An excellent start was made with an investigation of the causes which lead annually to heavy losses when milk sours prematurely. As would be expected, cleanliness and a low temperature have been proved to be the chief agents in the prevention of these avoidable losses. The reports already issued from the institute give some very striking illustrations of the high "keeping" properties of clean milk. In cheese-making the Research Institute has also a most promising field of investigation, for although many of the best varieties of cheese in the world have had their origin in this country, very little is known of the details of the processes. The higher price of milk makes it imperative that there should be no avoidable losses either in the milk supply or in the articles made from milk, the high food value (to say nothing of the physiological value) of which is now so generally recognised.

THE death has occurred, at the age of sixty-nine, of Dr. John Vose Hazen, who had recently resigned the chair of civil engineering and graphics at Dartmouth College, New Hampshire, after a long tenure.

DR. W. G. BISSELL, whose death is reported in his fiftieth year, had been chief of the Bureau of Bacteriology in the city of Buffalo since 1894. He was president of the New York State Sanitary Officers' Association.

AT the ordinary scientific meeting of the Chemical Society to be held on Thursday, December 18, Prof. J. Walker will deliver a lecture entitled "War Experiences in the Manufacture of Nitric Acid and the Recovery of Nitrous Fumes."

DR. PAUL SABATIER (Toulouse), Dr. Pierre Paul Emile Roux (Paris), Dr. Jacques Loeb (New York), Dr. Robert Andrews Millikan (Chicago), Dr. Arthur Gordon Webster (Harvard), and Dr. William Wallace Campbell (California) have been elected honorary members of the Royal Institution.

THE death is announced, in his eighty-fourth year, of Dr. Charles Henry Hitchcock, professor of geology at Dartmouth College, U.S.A., from 1868 to 1908. Dr. Hitchcock was widely known as the compiler of several geological maps of the United States, and for his researches in ichnology, geology of the crystalline schists, and glacial geology. During the winter of 1870–71 he established, on the top of Mount Washington, the first high mountain observatory in the United States. Among his many publications were memoirs upon the fossil tracks of the Connecticut Valley. On his retirement he went to live in Hawaii (where he died), and in 1909 he published a book on the volcanoes of that territory.

THE following are among the lecture arrangements at the Royal Institution before Easter, 1920:— Prof. W. H. Bragg, six lectures adapted to a juvenile auditory on The World of Sound; Sir John Cadman, two lectures on (1) Modern Development of the Miner's Safety Lamp and (2) Petroleum and the War; Prof. G. Elliot Smith, three lectures on The Evolution of Man and the Early History of Civilisation; Prof. Ernest Wilson, two lectures on Magnetic Susceptibility; Prof. Arthur Keith, four lectures on British Ethnology: The Invaders of England; Prof. A. E. Conrady, two lectures on Recent Progress in Photography; Prof. A. H. Smith, two lectures on Illustrations of Ancient Greek and Roman Life in the British Museum; Lt.-Col. E. Gold, two lectures on The Upper Air; Sir F. W. Dyson, Astronomer Royal, three lectures on The Astronomical Evidence bearing on Einstein's Theory of Gravitation; and Sir J. J. Thomson, six lectures on Positive Rays. The Friday evening discourses will begin on Friday, January 16, 1920, at 9 o'clock, when Sir James Dewar will deliver a discourse on Low-temperature Studies. Succeeding discourses will probably be given by Sir C. A. Parsons, Mr. S. G. Brown, Prof. W. M. Bayliss, Dr. E. J. Russell, Mr. W. B. Hardy, the Hon. J. W. Fortescue, Prof. J. A. Fleming, Mr. E. McCurdy, Sir J. J. Thomson, and others.

WE learn with regret of the death on November 25 of Mr. Frederick Webb Headley, at the age of sixty-three years. Educated at Harrow and Caius College, Cambridge, where he obtained a First Class in the Classical Tripos, Mr. Headley spent nearly forty years of his life as an assistant master at Haileybury College, where, so recently as June 30 last, he delivered his last lecture to the College Natural History Society on his favourite subject, "The Pedigree and Life of Birds." Through the instrumentality of this society and of the museum he succeeded in maintaining, generation after generation, a body of active boy-naturalists in the college, and few men were better able to fan into enthusiasm the spark of what so often proves but the passing hobby of a young boy. Of Headley's published works two, namely, "The Structure and Life of Birds" and "Life and Evolution," are very largely the finished product of lectures delivered to the boys. The variety of subjects handled is eloquent testimony to the wide sympathy and biological knowledge of the man—a classic by early training. The doctrine of evolution made a powerful appeal to his mind, as is evidenced by his "Problems of Evolution" and by "Darwinism and Modern Socialism." But it was "birds" and "flight" that more than all else attracted him. The war prevented the execution of a projected tour abroad with "birds" as a main object, and kept him at Haileybury longer than he had intended. Another such tour was planned after his final retirement last July. *Dis aliter visum.*

AT the meeting of the Illuminating Engineering Society on November 25, a short address on "Lambert and Photometry" was given by the president, Mr. A. P. Trotter, who raised the question whether Lambert ever devised a photometer, inclining, however, to the view that Bouguer was the first to contrive an apparatus for measuring light. Later in the evening Mr. Haydn T. Harrison exhibited a new form of photometer which had several interesting features, notably the use of an illuminated scale. The greater part of the evening was given up to exhibits, including a new form of "daylight" or colour-matching lamp, shown by Mr. L. C. Martin. This device, which is due to Mr. Sheringham, the well-known artist, involves the projection upwards of light from an electric lamp to a surface carrying a chessboard pattern in various colours. The reflected light closely resembles daylight in colour, and is stated to be well adapted to colour-matching processes. The indirect method thus utilised is considered very suitable for use in picture galleries, etc. Other exhibits included a series of tungsten arc ("pointolite") lamps exhibited by Mr. P. Freedman, of the Ediswan laboratory. This form of lamp utilises an arc between tungsten electrodes within a hermetically sealed bulb, and has proved very suitable for optical projection. By improved methods of manufacture larger tungsten globules, facilitating much higher candle-powers, have been prepared. Lamps giving up to 1000 c.p. have already been used, and a special 4000-c.p. unit, which it is hoped will prove specially suitable for kinema work, was shown at the meeting.

THE retirement of Dr. Cecil Lyster from the position of head of the electro-therapeutic department of the Middlesex Hospital was announced at a meeting of the governors of the hospital. The chairman, Lord Athlone, said that Dr. Lyster was now lying in a critical condition directly due to his self-sacrificing devotion to duty. Dr. Lyster was one of the pioneers of scientific research, and applied himself to the study of X-rays and radium and their use in the treatment of disease, especially cancer. By exposure to the rays in the early days he fell a victim to the disease he sought to conquer. Though suffering, he declined to be set aside from his purpose, and continued his good work until now, when work for a time was no longer possible. Mr. Sampson Handley spoke of the high esteem in which Dr. Lyster was held by his colleagues on the staff of the hospital. Dr. Lyster was president of the section of electro-therapeutics of the Royal Society of Medicine for the year which ended in October last. His colleagues in the domain of X-rays and electro-therapeutics had occasion to appreciate his invariable tact and sympathy at the meetings over which he presided. At the joint meeting of his section with the Institution of Electrical Engineers on March 21 last he remarked, in introducing the president of the institution and asking him to take the chair: "We are amateurs in electricity, and we are at last asking the professional electrician to tell us what we want. I hope meetings of this sort will be continued in years to come, and that we shall be able to interest the Institution of Electrical Engineers in our work as electro-therapeutists and radiologists. It is a fascinating subject, and a far-reaching one for humanity—that is, the future of the electrical and radiological treatment of disease Perhaps my optimism is enormous." It is this spirit of optimism that has buoyed up Dr. Lyster through his times of suffering, and caused him to remain at his post to the last.

Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology, has recently returned from two months' field-work on the Mesa Verde National Park, Colorado. This park is the only one reserved by the U.S. Government for the protection of aboriginal buildings, and for the last decade the Department of the Interior and the Smithsonian Institution have co-operated in the excavation and repair of ruins in order that they may be preserved for posterity, after having been put in a condition to show their structural features. The field-work of last summer was devoted to a cliff-dwelling called Square Tower House from a high tower situated midway in its length. This tower is 40 ft. high, and is the highest building constructed of masonry by Indians north of Mexico before the coming of the whites. It adds to this unique feature the best-known example of prehistoric masonry, shown in the construction of the roofs of two circular rooms. The original rafters are still in place, showing the marks of stone implements used by the builders. The whole ruin, which measures 136 ft. in length, is most picturesquely situated, and has already become one of the greatest attractions of the park. An unexpected result of the field-work was the discovery of many inconspicuous buildings among the cedars on top of the plateau. The evidences of these buildings before excavating were very obscure, but they are so numerous in certain areas that there is scarcely a square quarter-mile in which one of them does not occur. One of these small buildings when excavated was found to belong to a very ancient type, probably the oldest on the mesa.

We have received the second number of *Medical Science*, a monthly periodical of abstracts and reviews of medical science published by the Medical Research Committee. The present issue contains, among others, reviews on diphtheria, tuberculosis, gastric ulceration, influenza, and cerebro-spinal fever. In the last-named, Dr. Rolleston surveys the epidemiology, symptoms, and treatment of the disease, particularly with serum. This, in the hands of numerous observers, has proved to be of benefit, reducing the mortality provided it is administered early enough.

A short, but very welcome, account of the courtship of the dabchick, by Mr. Julian Huxley, appears in *British Birds* for November. The author was too late to witness the earlier phases of the courtship, but he contrived to glean much information as to their behaviour after pairing-up had taken place. These birds, lacking the frills and crests characteristic of other species of grebes, display none of the posturing which takes place in the more resplendent species, but content themselves with the performance of duets recalling the neighing of a horse. They also spend much time in long excursions on the water, swimming side by side. It is to be hoped that next year it will be possible to start observations earlier in order that the initial stages of the courtship may be studied. Mr. Huxley's studies on the courtship of the great crested grebe are known to all ornithologists, and his able handling of this theme makes us the more anxious to have the complementary picture.

In an important memoir on a new type of nephridium found in Indian earthworms of the genus Pheretima (*Quarterly Journal of Microscopical Science*, vol. lxiv., part 1) Mr. Karm Narayan Bahl gives a very interesting description of the excretory system of *Pheretima posthuma*. He finds three distinct kinds of nephridia in this worm: septal, pharyngeal, and integumentary. Although the nephridia are very numerous and all small (micronephridia), the system is not plectonephric, each nephridium being a separate organ. The chief novelty of the author's work lies in the discovery that the septal nephridia open into the intestine, instead of on to the surface of the body, by segmentally arranged apertures, not directly, but through a system of ducts, of which the most important are a pair of longitudinal excretory canals lying above the intestine, one on each side of the mid-dorsal line. The author applies the term "enteronephric" to this remarkable type of nephridial system, and puts forward the suggestion—due to Prof. W. N. F. Woodland—that the discharge of the excretory products into the intestine may be a special adaptation for the conservation of moisture in a dry climate.

The *Journal of the Board of Agriculture* for October contains a preliminary report on the recent Lincoln tractor trials. The excellent work done by the machines and the large attendance of farmers show that the industry has now passed the pioneer stage. The tendency of the manufacturers is less to novelty of design than to development in accordance with the experience obtained in this country, chiefly as the result of the operation of the Government tractor scheme. Close attention is being paid to the reduction of weight, to the increased accessibility of the vital parts of the machinery, and to the provision of protection from the effect of weather and dirt. Interesting comparisons were made of the ploughing done by tractors fitted respectively with high-speed vertical and low-speed horizontal engines, with wheels and caterpillar-tracks, and between self-contained machines and independent tractors. The use of the tractor is not restricted to ploughing, and there were important haulage tests and threshing demonstrations. Great as is the value of the present trials from the commercial and educational points of view, further trials extending over a considerable interval, and giving greater uniformity of task and conditions, will be necessary before the capacity of the various machines can be defined.

The *Kew Bulletin* (Nos. 6 and 7, 1919) contains an account of recent investigations by J. Bintner on the symptoms and distribution of silver-leaf disease. There has been much controversy as to the cause of the disease, which is now established as mainly due to the growth in the tissues of the mycelium of the fungus *Stereum purpureum*. Mr. Bintner demonstrates the presence of the fungus in the wood of diseased branches, which show the brown coloration beneath the bark characteristic of the disease. No trace of the fungus has been found in the leaves, and it is suggested that the separation of the cells, which gives the silver effect, is caused by the production of some diffusible toxin by the fungus, which is conveyed to the leaves in the water-conducting channels. Infection takes place through open wounds above ground and immediately below ground-level, and inoculation experiments confirm the view that injured superficial roots can be infected. Localised silvering of a branch results from local infection which has not yet spread to the main stem, and excision of the diseased branch may save the tree. On the other hand, silvered suckers springing from a healthy tree indicate root-infection, and where root or stem is infected there is no hope of saving the tree. The disease has been proved to occur on a number of plants besides plum, apple, and other members of the family Rosaceæ, including species of laburnum, horse-chestnut, and cultivated varieties of gooseberries and currants. As a preventive measure good cultivation is recommended; careless pruning, unsatisfactory drainage, and deficiency of lime are especially to be avoided. The author also indicates an apparently distinct disease which he calls "false silver-leaf," which may be mistaken for the disease caused by Stereum, but no trace of this fungus has been found in the plants affected. It is suggested that false silver-leaf, from which plants recover under careful treatment, is due to physiological weakness. It has been observed in cultivated varieties of apple, cherry, peach, and plum.

A NOTEWORTHY addition to our knowledge of Eocene foraminifera is made by the publication of the late Mr. E. Halkyard's "Fossil Foraminifera of the Blue Marl of the Côte des Basques, Biarritz," under the care of Messrs. E. Heron-Allen and A. Earland (Mem. Manchester Lit. and Phil. Soc., vol. lxii., part ii.). Megalospheric and microspheric forms are discussed among the nummulites.

MESSRS. F. F. GROUT and T. M. Broderick (*Amer. Journ. Sci.*, vol. xlviii., p. 199, 1919) describe structures in the Huronian iron-bearing strata of the Mesabie range in Minnesota as due to algæ. In this they have the support of Dr. C. Walcott, who writes that the iron-ore was evidently separated out of marine waters through the metabolism of the algal growths, which he compares with Cryptozoön.

IN the *American Journal of Science* (vol. xlviii., p. 136, 1919) Prof. R. A. Daly replies to recent criticisms of his "glacial-control" theory of the growth of coral-reefs. He urges that the general absence of cliffs on the island spurs may be due to the protection afforded by rapidly growing fringing reefs in late Cainozoic time; these would have to be scoured away before the Pleistocene sea could attack the volcanic masses. Variations in the depths of lagoons, again, may be expected even on a general platform of erosion, owing to the presence of drowned valleys, fault-troughs, and volcanically formed depressions not yet filled with detritus. Lagoon depths greater than 50 or 60 fathoms are, however, rare.

THE *Times* of November 28 contains an article from Prof. Einstein on his generalised principle of relativity. Prof. Einstein remarks at the beginning of the article: "After the lamentable breach in the former international relations existing among men of science, it is with joy and gratefulness that I accept this opportunity of communication with English astronomers and physicists. It was in accordance with the high and proud tradition of English science that English scientific men should have given their time and labour, and that English institutions should have provided the material means, to test a theory that had been completed and published in the country of their enemies in the midst of the war." After a brief account of the general nature of the theory, which does not add anything to what has been summarised by Prof. Eddington in his report to the Physical Society, Prof. Einstein concludes: "The great attraction of the theory is its logical consistency. If any deduction from it should prove untenable, it must be given up. A modification of it seems impossible without destruction of the whole. No one must think that Newton's great creation can be overthrown in any real sense by this or any other theory. His clear and wide ideas will for ever retain their significance as the foundation on which our modern conceptions of physics have been built. . . . By an application of the theory of relativity to the taste of readers, to-day in Germany I am called a German man of science, and in England I am represented as a Swiss Jew. If I come to be regarded as a *bête noire,* the descriptions will be reversed." Prof. Eddington, in the *Contemporary Review,* quotes from Newton's "Opticks":—"Query 1. Do not bodies act upon light at a distance, and by their action bend its rays?"

ON Engler's theory of the origin of petroleum, the oil has been formed out of animal and vegetable fatty matters derived from marine animals and plants. The fats have been hydrolysed by water, and the resulting fatty acids, under the influence of heat and pressure, have then been decomposed into carbon dioxide and hydrocarbons, these latter constituting the petroleum. Whilst this theory would account for the liquid hydrocarbons of the aliphatic series found in petroleum, it does not explain the presence either of solid paraffins or of the aromatic (naphthenic) hydrocarbons which are found in most petroleums, and, indeed, form the whole of some varieties. Engler's distillation experiments in confirmation of the theory were made chiefly on free oleic and stearic acids. It is probable, however, that salts of these acids, rather than the free acids themselves, would be the bodies acted upon during the natural production of petroleum. Following up this idea, MM. Pictet and Potok have carried out a series of experiments on the distillation of sodium stearate and sodium oleate, with the view of ascertaining whether, in operations thus approximating more closely to the natural conditions, aromatic hydrocarbons or paraffins of high boiling points are produced (*Helvetica Chimica Acta,* 2, v., 501). In the result it was found that the chief products were acyclic and unsaturated hydrocarbons closely agreeing with those found in American petroleum, but no trace of naphthenic (aromatic) hydrocarbons was produced. Hence the origin of Baku petroleum, and of the numerous other kinds which contain these naphthenic bodies, is not accounted for by Engler's theory. Further, since many of these bodies show optical rotation, they have probably been produced at relatively low temperatures, and not by the closing up of acyclic compounds, which would demand high temperatures and yield inactive products. No likely source of such optically active bodies suggests itself except the resinous or terpenic constituents of the higher plants. Similar compounds have, in fact, been extracted from coal. For the numerous petroleums containing both acyclic and naphthenic hydrocarbons a twofold origin appears to be indicated.

THE announcements of *Messrs. A. and C. Black, Ltd.,* include "X-rays in General Practice," Alice Vance Knox, with chapters on Instrumentation, Dr. R. Knox; "Cerebro-Spinal Fever: The Etiology, Symptomatology, Diagnosis, and Treatment of Epidemic Cerebro-Spinal Meningitis," Drs. C. Worster-Drought and A. M. Kennedy; "Medieval Medicine," J. J. Walsh; and "The Making of Europe: A Geographic Treatment of the Historic Development of Europe," W. H. Barker and W. Rees. In addition to the books announced for publication by the *Cambridge University Press* (see NATURE, November 20, p. 321) may be mentioned "Physics," Dr. Norman R. Campbell, 3 vols.; "The Theory of the Imaginary in Geometry," J. L. S. Hatton; "Practical Chemistry for Agricultural Students," H. A. D. Neville, vol. i.; "What Became of the Bones of St. Thomas," Rev. Canon A. J. Maron; "From Ritual to Romance" (A Study of Comparative Religion and

Folk-lore), Miss J. L. Weston. *Messrs. Constable and Co., Ltd.*, announce "Physiology and the Nation's Needs," edited by Prof. W. D. Halliburton, containing essays by Dr. M. S. Pembrey, Prof. D. Noël Paton, and the editor on, respectively, "Physical Training and the Open-air Life," "Physiology in the Study of Disease," and "Physiology and the Food Problem." They also promise "Elementary Plane Trigonometry," H. E. Piggott.

MESSRS. DULAU AND CO., LTD., 34 Margaret Street, W.1, have issued a Catalogue (No. 80) of nearly six hundred works on Diatomaceæ, Botany, Horticulture, Agriculture, Natural History, Geology, Palæontology, Voyages and Travels, Astronomy, Physics and Mechanics which will doubtless appeal to many readers of NATURE. It can be obtained upon application.

OUR ASTRONOMICAL COLUMN.

HELIOCENTRIC GROUPING OF PLANETS IN DECEMBER.—The astrologers have been amusing themselves and alarming the timid by predicting violent cosmic convulsions as the result of the planetary grouping on December 17. The actual position is sufficiently interesting to warrant a note. During the five days December 13 to 17, six of the eight major planets will be within a range of 26° in heliocentric longitude, while Uranus will be in the same line on the other side of the sun, the earth alone standing out. In the following list the two longitudes given refer to noon on December 13 and 17 respectively:—Mercury, 130° to 154°; Venus, 135° to 143°; Earth, 79° to 84°; Mars, 152° to 154°; Jupiter, 129°; Saturn, 155½°; Uranus, 331°; and Neptune, 130°. There were similar scares when the four giant planets were all near perihelion together. We may safely predict that they will be as baseless now as they were then.

COMETS.—Finlay's periodic comet passed perihelion about October 15·38. It was a fairly conspicuous object in November, and observations are numerous. It will be much fainter in December, but an ephemeris (for Greenwich midnight) may still be of use:—

		R.A. h. m. s.	N. Decl. ° ′			R.A. h. m. s.	N. Decl. ° ′
Dec.	5	1 33 59	13 14	Dec.	13	2 7 12	16 52
	7	1 43 7	14 20		15	2 14 13	17 28
	9	1 51 41	15 18		17	2 20 47	17 56
	11	1 59 42	16 9		19	2 26 56	18 17

Schaumasse's periodic comet is also fading, but more slowly. Ephemeris for Greenwich midnight:—

		R.A. h. m. s.	S. Decl. ° ′			R.A. h. m. s.	S. Decl. ° ′
Dec.	5	14 9 36	2 2	Dec.	13	14 33 13	3 52
	7	14 15 38	2 30		15	14 38 54	4 17
	9	14 21 35	2 58		17	14 44 31	4 42
	11	14 27 27	3 25		19	14 50 3	5 6

Messrs. Braae and Fischer Petersen announce that their supposition that comet 1919*b* (Brorsen-Metcalf) has made two revolutions since 1847 is not correct; its true period is 72·1 years.

FALL OF A METEORITE IN AMERICA.—The daily papers report that on the night of November 27 last a large meteorite descended into Lake Michigan, and that the object was seen before its fall by many persons over a wide extent of country. If this event is fully corroborated, it seems quite possible that the meteorite may have been a fragment of Biela's lost comet, like the Mazapil meteorite of November 27, 1885, on which date there occurred a great shower of ordinary meteors.

The earth passed through the orbit of Biela's comet on that occasion, and must have been very near, if not involved in, the denser portion of the material forming the remains of the comet. The latter had a periodic time of revolution amounting to about 6¾ years, and if we add five periods to the last return near the end of 1885 we arrive at the present time, so that a display of meteors was rendered quite probable. However, no very conspicuous shower occurred, though from reports sent in by various observers for the period November 19–25 a few meteors, including several of special brilliancy, were recorded from the right direction in Andromeda. In all, seventeen paths appear to be conformable to this shower, and the radiant is indicated at 29°+44° near the star γ Andromedæ.

On the same night, at 9h. 50m., that the meteorite is said to have fallen in America, a fireball was seen at Bristol descending slowly in the north-eastern sky, but the atmosphere was very hazy and few stars were visible. Observations of this object from other places would be valuable.

ANNIVERSARY MEETING OF THE ROYAL SOCIETY.

THE anniversary meeting of the Royal Society was held on Monday, when the report of the council was presented and the president, Sir J. J. Thomson, delivered an address. In the evening fellows and their guests dined together at the Royal Palace Hotel, Kensington, this being the first anniversary dinner since 1913. The assembly received with much satisfaction the announcement of the president that the Prince of Wales is to be admitted a fellow of the society early next year.

The report of the council is largely occupied with an account of the origin and constitution of the International Research Council and the related National Research Council. It is hoped that the British Government will consent to make the annual contribution required from countries forming part of the international organisation, in order to place the Council on a sound financial basis. The report refers also to the increased need of financial assistance for the promotion of research in pure sciences and to developments of the National Physical Laboratory under Sir Richard Glazebrook's directorship. The names of the new officers and council were announced in NATURE of November 13 (p. 295)

In his presidential address Sir Joseph Thomson referred to the retirement of Sir Alfred Kempe (treasurer) and Dr. Schuster (secretary) and to the invaluable services which these officers have rendered to the society. He also announced with regret that the assistant secretary, Mr. R. Harrison, has been obliged to resign his office owing to ill-health. The subjoined extracts are from the president's address.

Einstein's Theory.

I cannot pass over without notice the remarkable result that was announced at our first meeting this session: that the observations made at the eclipse of May 29 showed that light was deflected, when passing close to the sun, by an amount which, within the somewhat wide limits of the experimental error, agreed with that predicted by Einstein.

The deflection of light by matter, suggested by Newton in the first of his Queries, would in itself be a result of first-rate scientific importance; it is of still greater importance when its magnitude supports the law of gravity put forward by Einstein, a law which has explained the long-standing difficulty of the motion of the perihelion of Mercury.

On Einstein's law the velocity of light passing